



EcoRI (3)

KpnI (28)

PfiMI (83)

CAGAATTCATTAAGAGGAGAAAAGGTACCATGAGTGTCAACTTAGCTTCCCAGTTGCGGGAAGGGACGAAAAAATCCCCTCC
 ▶ M S V N L A S Q L R E G T K K S H S
 ATGGCGGAGAACGTCGGCTTTGTCAAATGCTTCCTCAAGGGCGTTGTCGAGAAAAATTCCTACCGTAAGCTGGTTGGCAATCT
 ▶ M A E N V G F V K C F L K G V V E K N S Y R K L V G N L
 CTACTTTGTCTACAGTGCCATGGAAGAGGAAATGGCAAAATTTAAGGACCATCCCATCCTCAGCCACATTTACTTCCCCGAAC
 ▶ Y F V Y S A M E E E M A K F K D H P I L S H I Y F P E
 TCAACCGCAAACAAAGCCTAGAGCAAGACCTGCAATTCTATTACGGCTCCAACCTGGCGGCAAGAAGTAAAAATTTCTGCCGCT
 ▶ L N R K Q S L E Q D L Q F Y Y G S N W R Q E V K I S A A

BglI (372)

SfiI (372)

GGCCAAGCCTATGTGGACCGAGTCCGGCAAGTGGCCGCTACGGCCCTGAATTGTTGGTGGCCCATTCCTACACCCGTTACCT
 ▶ G Q A Y V D R V R Q V A A T A P E L L V A H S Y T R Y L

BstXI (480)

GGGGGATCTTTCCGGCGGTCAAATTCTCAAGAAAAATTGCCCAAAATGCCATGAATCTCCACGATGGTGGCACAGCTTTCTATG
 ▶ G D L S G G Q I L K K I A Q N A M N L H D G G T A F Y

DraI (530)

AATTTGCCGACATTGATGACGAAAAGGCTTTTTAAAAATACCTACCGTCAAGCTATGAATGATCTGCCCATTGACCAAGCCACC
 ▶ E F A D I D D E K A F K N T Y R Q A M N D L P I D Q A T

XmnI (633)

EcoNI (660)

GCCGAACGGATTGTGGATGAAGCCAATGACGCCTTTGCCATGAACATGAAAAATGTTCAACGAACCTGAAGGCAACCTGATCAA
 ▶ A E R I V D E A N D A F A M N M K M F N E L E G N L I K
 GGCGATCGGCATTATGGTGTTCACAGCCTCACCCGTCGCCGAGTCAAGGCAGCACCGAAGTTGGCCTCGCCACCTCCGAAG
 ▶ A I G I M V F N S L T R R R S Q G S T E V G L A T S E

BamHI (767)

GCTAGTTAAAGAGGAGAAAAGGATCCATGGCCGTCCTGATTTAAGTTTGACCAATTCTTCCCTGATGCCTACGTTGAACCCGA
 ▶ G ▶ M A V T D L S L T N S S L M P T L N P
 TGATTCAACAGTTGGCCCTGGCGATCGCCGCTAGTTGGCAAAGTTTACCCCTCAAGCCCTATCAATTGCCGGAGGATTTGGGC
 ▶ M I Q Q L A L A I A A S W Q S L P L K P Y Q L P E D L G

SnaBI (916)

NsiI (993)

TACGTAGAAGGCCGCTGGAAGGGGAAAAGTTAGTGATTGAAAAATCGGTGCTACCAAACGCCCCAGTTTCGAAAAATGCATTT
 ▶ Y V E G R L E G E K L V I E N R C Y Q T P Q F R K M H L
 GGAGTTGGCCAAGGTGGGCAAAGGGTTGGATATTCTCCACTGTGAATGTTTCCTGAGCCTTTATACGGTCTACCTTTGTTTG
 ▶ E L A K V G K G L D I L H C V M F P E P L Y G L P L F

FseI (1098)

GCTGTGACATTGTGGCCGGCCCCGGTGGAGTAAGTGGCGCTATTGCGGATCTATCCCCACCCAAAGCGATCGCCAATTGCC
 ▶ G C D I V A G P G G V S A A I A D L S P T Q S D R Q L P
 GCAGCGTACCAAAAATCATTGGCAGAGCTAGGCCAGCCAGAATTTGAGCAACAACGGGAATTGCCCCCTGGGGAGAAATATT
 ▶ A A Y Q K S L A E L G Q P E F E Q Q R E L P P W G E I F

BsrGI (1300)

TTCTGAATATTGTTTATTCATCCGTCCCAGCAATGTCACTGAAGAAGAAAGATTGTACAAAGGGTAGTGACTTTTTGCAAA
 ▶ S E Y C L F I R P S N V T E E E R F V Q R V V D F L Q
 TTCATTGTACCAATCCATCGTTGCCGAACCTTGTCTGAAGCTCAAACCTTTGGAGCACCGTCAGGGGCAAATTCATTACTGC
 ▶ I H C H Q S I V A E P L S E A Q T L E H R Q G Q I H Y C
 CAACAACAACAGAAAAATGATAAAACCCGTCGGGTACTGAAAAAGCTTTTGGGGAAGCTTGGGCGGAACGGTATATGAGCCA
 ▶ Q Q Q Q K N D K T R R V L E K A F G E A W A E R Y M S Q

XbaI (1520)

AGTCTTATTTGATGTTATCCAATAATCTAGAGGCATCAAATAAACGAAAGGCTCAGTCGAAAGACTGGGCCTTTCTGTTTTAT
 ▶ V L F D V I Q

AvrII (1631)

CTGTTGTTTGTGGTGAACGCTCTCCTGAGTAGGACAAATCCGCCGCCCTAGACCTAGGGGATATATTCCGCTTCCTCGCTCA
 CTGACTCGCTACGCTCGGTCTGCTGAGTGGCGGAGCGGAAATGGCTTACGAACGGGCGGAGATTTCTGGAAGATGCCAGG

SacII (1774)

AAGATACTTAACAGGGAAGTGAGAGGGCCGCGGCAAGGCCGTTTTTCCATAGGCTCCGCCCCCTGACAAGCATCACGAAATC
 TGACGCTCAAATCAGTGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGCGGCTCCCTCGTGCCTC

Agel (1932)

TCCTGTTCTCCTGCCTTTTCGGTTTACCGGTGTCATTCCGCTGTTATGGCCGCGTTTGTCTCATTCCACGCCTGACACTCAGTTCC
GGGTAGGCAGTTCGCTCCAAGCTGGACTGTATGCACGAACCCCCCGTTCAGTCCGACCGCTGCGCCTTATCCGGTAACTATCG

AlwNI (2125)

TCTTGAGTCCAACCCGAAAGACATGCAAAAGCACCCTGGCAGCAGCCACTGGTAATTGATTTAGAGGAGTTAGTCTTGAAG
TCATGCGCCGGTTAAGGCTAAACTGAAAGGACAAGTTTTGGTGACTGCGCTCCTCCAAGCCAGTTACCTCGGTTCAAAGAGTT

BstBI (2259)

GGTAGCTCAGAGAACCTTCGAAAAACCGCCCTGCAAGGCGGTTTTTTTCGTTTTTCAGAGCAAGAGATTACGCGCAGACCAAAAC

AseI (2346)

GATCTCAAGAAGATCATCTTATTAATCAGATAAAATATTACTAGATTTTCAGTGCAATTTATCTCTTCAAATGTAGCACCTGAA

SpeI (2434)

GTCAGCCCCATACGATATAAGTTGTTACTAGTGCTTGGATTCTCACCAATAAAAAACGCCCGGCGGCAACCGAGCGTTCTGAA

SacI (2550)

CAAATCCAGATGGAGTTCTGAGGTCATTACTGGATCTATCAACAGGAGTCCAAGCGAGCTCTCGAACCCAGAGTCCCGCTCA
GAAGAACTCGTCAAGAAGGCGATAGAAGGCGATGCGCTGCGAATCGGGAGCGGCGATACCGTAAAGCACGAGGAAGCGGTCAG

◀ F F E D L L R Y F A I R Q S D P A A I G Y L V L F R D A

RsrII (2717)

CCCATTCGCGGCCAAGCTCTTCAGCAATATCACGGGTAGCCAACGCTATGTCCTGATAGCGGTCCGCCACACCCAGCCGGCCA

◀ W E G G L E E A I D R T A L A I D Q Y R D A V G L R G

CAGTCGATGAATCCAGAAAAGCGGCCATTTTCCACCATGATATTCGGCAAGCAGGCATCGCCATGGGTACGACGAGATCCTC

◀ C D I F G S F R G N E V M I N P L C A D G H T V V L D E

BssHII (2835)

SphI (2835)

GCCGTCGGGCATGCGCGCCTTGAGCCTGGCGAACAGTTCGGCTGGCGCGAGCCCCTGATGCTCTTCGTCCAGATCATCCTGAT

◀ G D P M R A K L R A F L E A P A L G Q H E E D L D D Q D

CGACAAGACCGGCTTCCATCCGAGTACGTGCTCGCTCGATGCGATGTTTCGCTTGGTGGTCAATGGGCAGGTAGCCGGATCA

◀ V L G A E M R T R A R E I R H K A Q H D F P C T A P D

AGCGTATGCAGCCCGCGCATTGCATCAGCCATGATGGATACTTTCTCGGCAGGAGCAAGGTGAGATGACAGGAGATCCTGCCC

◀ L T H L R R M A D A M I S V K E A P A L H S S L L D Q G

FspI (3134)

CGGCACTTCGCCCCAATAGCAGCCAGTCCCTTCCCCGCTTCAGTGACAACGTCGAGCACAGCTGCGCAAGGAACGCCCGTCGTGG

◀ P V E G L L L W D R G A E T V V D L V A A C P V G T T A

PstI (3187)

DrdI (3211)

CCAGCCACGATAGCCGCGCTGCCTCGTCTGCAGTTCATTACAGGGCACCGGACAGGTGCGTCTTGACAAAAAGAACCGGGCGC

◀ L W S L R A A E D Q L E N L A G S L D T K V F L V P R

CCCTGCGCTGACAGCCGGAACACGGCGGCATCAGAGCAGCCGATTGTCTGTTGTGCCAGTCATAGCCGAATAGCCTCTCCAC

◀ G Q A S L R F V A A D S C G I T Q Q A W D Y G F L R E V

EagI (3326)

BglII (3396)

CCAAGCGGCGGAGAACCTGCGTGCAATCCATCTTGTTCATTCATGCGAAACGATCCTCATCCTGTCTCTTGATCAGATCTTG

◀ W A A P S G A H L G D Q E I M

XcmI (3421)

ATCCCCGCGCCATCAGATCCTTGGCGGCAAGAAAGCCATCCAGTTTACTTTGCAGGGCTTCCCAACCTTACCAGAGGGCGCC

AatII (3506)

ApaI (3547)

CCAGCTGGCAATTCCGACGCTGTGTGGAATTGTGAGCGGATAACAATTTACACAGGGCCCTCGGACACCGAGGAGAATGTC

AAGAGGCGAACACACAACGCTTGGAGCGCCAGAGGAGGAACGAGCTAAAACGGAGCTTTTTTGGCCTGCGTGACCAGATCCC

GGAGTTGAAAAACAATGAAAAGGCCCCCAAGGTAGTTATCCTTAAAAAAGCCACAGCATAACATCCTGTCCGTCCAAGCAGAGG

AGCAAAAGCTCATTTCTGAAGAGGACTTGTGCGGAAACGACGAGAACAGTTGAAACACAACTTGAACAGCTACGGAACCTCT

XhoI (3893)

AvaI (3893)

Sall (3888)

TGTGCGTAAGGAAAAGTAAGGAAAACGATTCTTCTAACAGAAATGTCCTGAGCAATCACCTATGAACTGTGACTCGAGCAT

Eco47III (3950)

AGCATTTTTATCCATAAGATTAGCGGATCTAACCTTTACAATTGTGAGCGCTCACAATTATGATAGATTCAATTGTGAGCGGA

junction marker (3997)

TAACAATTTACA